AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (Currently amended) An optical receiver module with digital adjustment ~~includes~~, comprising: an optical-electrical converter circuit~~, a voltage output t circuit of optical power detection,~~ and a bias voltage adjusting circuit that comprises a DC/DC voltage boost circuit; ~~it is further included that,~~wherein the optical receiver module is standardized before applied;

a voltage output circuit of optical power detection detecting and sending an analog voltage of an optical power;

a digital adjusting unit digitally adjusting the DC/DC voltage boost circuit to output different voltage;

an A/D converter converting both an analog voltage of a measured working temperature of an optical detector into a digital data and ~~an~~ the analog voltage of ~~a measured~~the optical power into a digital data, which are used for controlling the digital adjustment circuit, monitoring a bias voltage of the optical detector, making temperature compensation and dark current compensation at different temperature; and

a memory storing parameters of the optical receiver module as a basis for adjustment.

2. (Original) The optical receiver module with digital adjustment according to Claim 1, wherein the digital adjusting unit is a D/A converter.

3. (Original) The optical receiver module with digital adjustment according to Claim 1, wherein the digital adjusting unit is a digital potentiometer.

4. (Currently amended) An adjusting method for an optical receiver module with digital adjustment, comprising,

~~A. setting a memory,~~ storing ~~digital values for~~ digital-analog ~~conversion~~ (DA) values of a D/A converter of the optical receiver module during dark current zero-adjustment and optical detector bias voltage adjustment in ~~the~~ a memory, wherein the storing is performed before the optical receiver module is applied and under the condition that no optical is inputted;

storing digital values (AD) converted through an A/D converter during standardizing optical power detection and temperature measurement before the optical receiver module is applied, wherein the AD value corresponds to optical power;

~~B.~~ reading out the DA value during dark current zero-adjustment and optical detector bias voltage adjustment from the memory and loading to a digital adjusting unit;

~~C.~~ comparing the optical power AD value stored in the memory during standardizing optical power detection with a detected optical power AD value converted by the A/D converter and sending a result to a CPU in the optical receiver module for linear interpolation;

~~D.~~ comparing the temperature AD value stored in the memory during temperature measurement with a measured temperature AD value converted by the A/D converter, and sending a result to the CPU;

~~E.~~ the CPU detecting whether dark current compensation at current temperature satisfies preset temperature compensation requirement, if it is, keeping the DA value, otherwise changing the DA value ~~in step B~~ read out to adjust further dark current compensation;

~~F.~~ the CPU detecting whether the bias voltage of the optical detector at current temperature satisfies preset temperature compensation requirement, if it is, keeping said DA value, otherwise changing the DA value ~~in step B~~ read out to adjust further voltage of the optical detector.

5. (Currently amended) The method according to Claim 4, ~~in step A~~ wherein storing DA values during dark current zero-adjustment comprises:

~~A1.~~ setting a DA value;

~~A2.~~ converting an analog output Optical Power Measurement (OPM) of an operation amplifier for optical power detection into a digital data by the A/D converter, and then sending to the CPU;

~~A3.~~ the CPU detecting whether the digital data satisfies dark current zero-adjustment requirement; if it is, storing the set DA value in the memory, otherwise returning to ~~step A1~~setting a DA value.

6. (Currently amended) The method according to Claim 4, ~~in step A~~ wherein storing DA values during optical detector bias voltage adjustment comprises:

~~A4.~~ setting a DA value;

~~A5.~~ converting an optical detector bias voltage by the A/D converter into a digital data, and then sending to the CPU;

~~A6.~~ the CPU detecting whether the digital data satisfies the optical detector bias voltage requirement; if it is, storing the set DA value in the memory, otherwise, returning to ~~step A4~~setting a DA value.

7. (Currently amended) The method according to Claim 4, ~~in step A~~wherein storing AD values during standardizing optical power detection comprises:

~~A7.~~ inputting a standard light source;

~~A8.~~ determining ~~a~~ corresponding AD values with 0.5 ~~dBm~~ dB optical power space within optical power detection scope, and storing the determined AD values in the memory.

8. (Currently amended) The method according to Claim 4, ~~in step A~~wherein storing AD values during standardizing temperature measurement comprises:

~~A9.~~ calculating corresponding relationship between a temperature and the AD value;

~~A10.~~ determining ~~a~~ corresponding AD values with 5°C space within a certain temperature scope, storing the determined AD values in the memory.

9. (Currently amended) The method according to Claim 4, further comprises, ~~in the memory~~ storing, in the memory, parameters of the optical receiver module including type of the optical receiver module, production date, receiving sensitivity, overload point and maximum bias voltage of the optical detector during test.

10. (Currently amended) The method according to Claim 4, further ~~comprises,~~comprising: reading out a digital data of bias voltage of the optical detector converted by an A/D converter through the CPU, and then real-timely displaying.

11. (New) An apparatus for optical power detection in an optical receiver module, which is standardized before applied, comprising:

a voltage output circuit of optical power detection sampling a bias current, converting the bias current to a voltage for indicating optical power, and sending the voltage which is analog;

an A/D converter receiving the analog voltage, converting the analog voltage into digital data of the analog voltage, and comparing the digital data of the analog voltage with an AD value stored in a memory, and sending a result to a CPU for obtaining the optical power; and

the memory storing an AD value of an analog voltage, and optical power corresponding to the AD value when the optical power of the apparatus is standardized.

12. (New) The apparatus according to Claim 11, wherein the optical power of the optical power detection module is standardized through:

inputting a standard light source;

determining corresponding AD values with 0.5 dB optical power space within optical power detection scope, and storing the determined AD values and corresponding optical power in the memory.

13. (New) The apparatus according to Claim 11, wherein dark current zero-adjustment is further carried out for the apparatus, and the dark current zero-adjustment comprises:

setting a DA value;

the CPU detecting whether dark current compensation at current temperature satisfies preset temperature compensation requirement, if it is, keeping the DA value, otherwise changing the DA value to adjust further dark current compensation.

14. (New) A method for optical power detection in an optical receiver module, comprising:

sampling, by a voltage output circuit of optical power detection, a bias current, converting the bias current to a voltage for indicating an optical power, and sending the voltage which is analog; wherein the optical power of the optical power detection module is standardized before applied;

receiving, by an A/D converter, the analog voltage, converting the analog voltage into digital data of the analog voltage, and comparing the digital data of the analog voltage with an AD value stored in a memory, and sending a result to a CPU for obtaining the optical power; and

storing, by the memory, an AD value of an analog voltage, and optical power corresponding to the AD value when the optical power of the optical power detection module is standardized.

15. (New) The method according to Claim 14, wherein the optical power of the optical power detection module is standardized through:

inputting a standard light source;

determining corresponding AD values with 0.5 dB optical power space within optical power detection scope, and storing the determined AD values and corresponding optical power in the memory.

16. (New) The method according to Claim 14, further comprising: carrying out dark current zero-adjustment through:

setting a DA value;

detecting, by the CPU, whether dark current compensation at current temperature satisfies preset temperature compensation requirement, if it is, keeping the DA value, otherwise changing the DA value to adjust further dark current compensation.

17. (New) The method according to Claim 14, wherein the CPU obtains the optical power through linear interpolation.